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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,406	06/26/2003	Mohamad Shaheen	42P16009	8443

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Lester J. Vincent  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP  
Seventh Floor  
12400 Wilshire Boulevard  
Los Angeles, CA 90025

EXAMINER
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LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/608,406	Applicant(s) SHAHEEN ET AL.	
	Examiner Steven Loke	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 27-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-33 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 6 is/are rejected.
- 7) ☒ Claim(s) 3-5, 7, 8, 34 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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1. Applicant's election without traverse of claims 1-8 and 27-35 in the reply filed on 10/22/04 is acknowledged.

2. The abstract of the disclosure is objected to because the abstract should describe the structure of the device instead of the method to make the device.

Correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: An apparatus comprising: first means for creating voids in an oxide layer, the first means comprising a first quantity of a first type of ions; second means for expanding the voids comprising a second quantity of a second type of ions; third means for annealing the voids as claimed in claim 27. The claimed subject matters as claimed in claims 28-35.

4. Claims 34 and 35 are objected to because of the following informalities: Claims 34 and 35, line 1, the phrase "the fourth means" has no antecedent basis. Appropriate correction is required.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2 and 6 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Bryan.

In regards to claim 1, Bryan shows all the elements of the claimed invention in figs. 1-6. It is an integrated circuit (col. 1, lines 8-19), comprising: a semiconductor substrate [31]; a device layer [19] coupled to the substrate, the device layer having been coupled to the substrate via a transfer process comprising: doping the device layer with a first quantity of a first ionic material [17] (silicon) and a second quantity of a second ionic material [22] (hydrogen); annealing (heating) (col. 5, lines 44-54, col. 6, lines 1-5) the device layer and semiconductor substrate at a first annealing temperature.

In regards to claim 1, the process limitation of how the device layer is formed has no patentable weight in claim drawn to structure. Note that a product by process claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a product by process claim, and not the patentability of the process, and that an old or obvious product by a new method is not patentable as a product, whether claimed in product by process claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

Therefore, the phrase "epitaxial layer" is thus non-limiting.

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In regards to claim 2, Bryan further discloses the sum of the first quantity of the first ionic material ( $10^{14}$  atoms/cm<sup>2</sup>) and the second quantity of the second ionic material ( $10^{14}$  atoms/cm<sup>2</sup>) is no greater than approximately  $2 \times 10^{15}$  cm<sup>-2</sup>.

In regards to claim 6, Bryan further discloses the second ionic material comprises hydrogen ions to react with the device layer at an energy level of approximately 40 KeV (col. 4, lines 57-59).

7. Claims 3, 4 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 27-33 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter: The first major difference in the claims not found in the prior art of record is the first annealing temperature is between approximately 439 degrees C and approximately 451 degrees C. The second major difference in the claims not found in the prior art of record is the first annealing temperature is between approximately 419 degrees C and approximately 430 degrees C. The third major difference in the claims not found in the prior art of record is the first ionic material comprises helium ions to react with the epitaxial layer at an energy level of approximately 50 KeV. The fourth major difference in the claims not found in the prior art of record is an apparatus comprising: first means for creating voids in an oxide layer; second means for expanding the voids; and third means for annealing the voids.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (571) 272-1657. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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January 9, 2005

Steven Loke  
Primary Examiner

